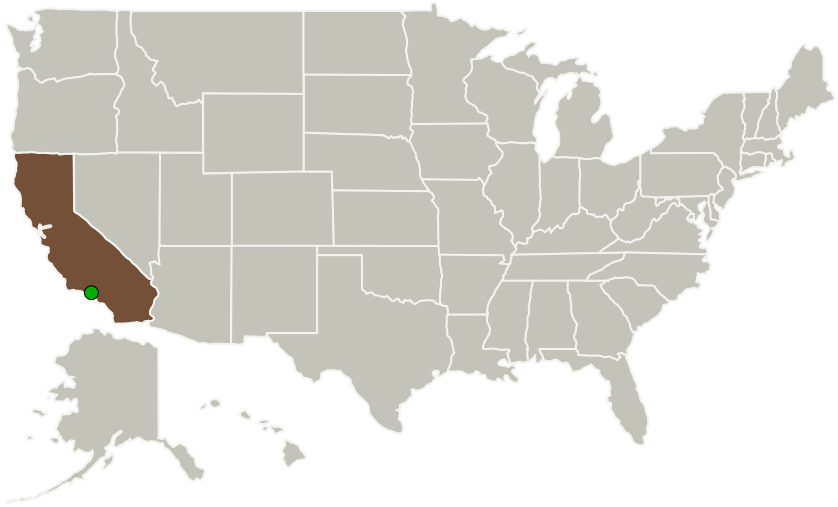
Three Dimensional Situational Awareness Sensor to Assist Descent and Landing of the Mars Lander Spacecraft, Phase I

Completed Technology Project (2012 - 2012)

Project Introduction

In order to address NASA's needs identified in the RFP, TetraVue proposes the use of a unique, non GPS and non-observer position dependent 3D sensor system to achieve both high lateral and depth resolution during the landing phase of the EDL. The system uses a nanosecond-class laser strobe to illuminate the scene and capture the 3D data in a single shot and is thus insensitive to motion of the observe or the scene. The approach can utilize off-the-shelf focal plane arrays to acquire high resolution, 3D data for a rapid and accurate craft landing and topographical hazard assessment. Phase I will result in a laboratory demonstration of TetraVue's technology to address the speed and range requirement of the program and bring the TRL level from 3 to 4. Phase II will demonstrate a breadboard prototype capable of performing demonstration experiments with realistic mission parameters and bring the TRL level from 4 to 5.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Tetravue	Lead Organization	Industry	San Marcos, California
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

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Primary U.S. Work Locations
California

Project Transitions

February 2012: Project Start

August 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139502)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Tetravue

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

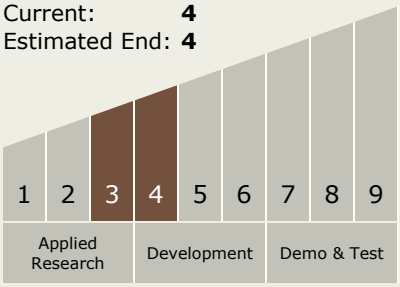
Carlos Torrez

Principal Investigator:

Bodo Schmidt

Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.4 Vehicle Systems
    - TX09.4.4 Atmosphere and Surface Characterization

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System